Things to know about GIS:

Vector versus raster data

Projections

Vector is going to be cleaner at most resolutions.

Basics:

* Science on a Sphere Recommended Resolution: (this is a key thing when dealing with immersive displays – what resolution?) 2048 X 1024 pixels for simple maps, 4096 X 2048 for intricate maps
* Recommended projection is WGS84, EPSG:4326

Things we will do today (using parts of this tutorial: [https://sos.noaa.gov/\_media/cms/docs/qgis\_tutorial.pdf](https://urldefense.proofpoint.com/v2/url?u=https-3A__sos.noaa.gov_-5Fmedia_cms_docs_qgis-5Ftutorial.pdf&d=DwMFaQ&c=nE__W8dFE-shTxStwXtp0A&r=OeBFT-mNSYlZ8WuxBRS_cA&m=1GV89OI7MetnctoB_Vx0OJOS5U0g3UDXyOXeDRE9UUg&s=Udde6FYxaGn8hSKlOsIVhIhzeXbCYFvjmh5aKbz8mrw&e=)):

First map, global choropleth map:

1. Learn how to make a chloropleth map of the world, and attach new data to a shapefile to make more maps. (Shapefile source: [http://thematicmapping.org/downloads/world\_borders.php](https://urldefense.proofpoint.com/v2/url?u=http-3A__thematicmapping.org_downloads_world-5Fborders.php&d=DwMBaQ&c=nE__W8dFE-shTxStwXtp0A&r=OeBFT-mNSYlZ8WuxBRS_cA&m=kevWJ30ZefE_WGXqWefxohEa6tgiO5SOUw_MPqNDf1Y&s=_PhPSNYkXUFlWgh2kkNcBjNR-0UgKWkpUPY0BvozjuA&e=) Datasource: https://www.eia.gov/beta/international/data/browser)
2. Export our map in appropriate SoS format

Second type of map, point map with imagery basemap:

1. Import a basemap image
2. Use a csv of latitude and longitude to map points (Nuclear Reactors in 2011: https://www.theguardian.com/news/datablog/2011/mar/18/nuclear-reactors-power-stations-world-list-map#data)
3. Export that map in SoS format

Your own map:

1. If time: search for other data to use in making maps and experiment independently

Possible data sources:

International energy statistics:

<https://www.eia.gov/beta/international/data/browser>

Atlas of the Biospheres (shapefiles w/data already added)

<https://nelson.wisc.edu/sage/data-and-models/atlas/maps.php>

Public SoS Data:

<ftp://public.sos.noaa.gov/>

ESRI Data and Maps World:

https://www.esri.com/arcgis-blog/products/product/mapping/esri-data-maps/

A better world shapefile:  
<http://www.arcgis.com/home/item.html?id=d974d9c6bc924ae0a2ffea0a46d71e3d>

Food and Ag Organization of United Nations:

<http://www.fao.org/statistics/databases/en/>

World Bank:

<https://data.worldbank.org/>

World Health Organization:

<https://www.who.int/gho/en/>